

## ABSTRACT

The invention relates to devices and methods that utilize immobilized bacterial bioreporters 5 genetically engineered to emit light visible to the naked eye in the presence of selected analytes. An exemplary bioreporter is an *E. coli* that has been modified to respond to mercury II as a result of incorporation of a merRop/lux gene cassette into its genome. Systems employing analogously engineered microorganisms can detect selected toxins quickly without need for expensive instruments or highly trained technicians.